REMARKS

Claims 1-18 are all the claims pending in the application.

At the outset, amendments have been made to the specification and claim 1 to correct typographical errors. Specifically, Table 3 at page 23, "Component D" now reads "Component C." See, for example, Claim 5. Also, claim 1 has been amended to read "a melt index of at least 1.0 dg/min." Support for this amendment is found at page 10, line 8 of the present specification.

Claims 1-18 have been rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner states it is unclear as to what is required for element (A) in Claim 1. He inquires whether "one of (Al) or (A2)" is required, or whether "one of (Al) and (A2)" is required.

Applicants respectfully traverse this rejection on the following grounds. Claim 1, as written, it is clear that element (A) can be either a mixture of (A1) and (A2) or just one of these two elements. The use of the word "and" to join the recitations of (A1) and (A2) does not preclude the selection of one of (A1) or (A2) from the group defined by (A1) and (A2). This construction of Claim 1 is supported in the specification at, for example, page 6, lines 13-16.

For the above reasons, it is respectfully submitted that Applicants' claims are clear and definite and it is requested that the rejection under 35 U.S.C. §112 be reconsidered and withdrawn.

Claims 1-8 have been rejected under 35 U.S.C. §102(b) as allegedly anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as allegedly obvious over the Rees '134 Patent.

Claims 1-11 have been rejected under 35 U. S.C. §102(b) as allegedly anticipated by or, in the alternative, under 35 U.S.C. §103(a) as allegedly obvious over the Waggoner '539 Patent.

Claims 1-8 have been rejected under 35 U.S.C. §102(b) as allegedly anticipated by or, in the alternative, under 35 U.S.C. 103(a) as allegedly obvious over the GB 1113409 Patent.

Claims 1-18 have been rejected under 35 U.S.C. §102(a) as allegedly anticipated by or, in the alternative, under 35 U.S.C. §103(a) as allegedly obvious over the Statz WO 00/23519 Patent.

The Examiner cites Example 64 in the Rees '134 patent as teaching a blend of ethylene/methacrylic acid copolymer, ZnO, and stearic acid (column 15).

The Examiner cites Examples 18 and 20 in the Waggoner '539 patent as teaching blends of olefin/acid copolymer with a fatty acid, and they teach neutralization of the blend with NaOH (columns 9 and 10; column 9, lines 55-57). While Example 18 teaches the use of capric acid (column 9, lines 54-55), which is a fatty acid having a molecular weight of 172.2668, Example 20 teaches a blend of arachidic and behenic acids (column 10, lines 23-25).

The Examiner cites the GB 1113409 patent as teaching the addition of fatty acids to highly neutralized ethylene/acid polymers. For example, Example 1 teaches the addition of stearic acid to the 100% neutralized sodium salt of a copolymer of ethylene and methacrylic acid. The Examiner states that this teaching is, in effect, the "preblending of Applicants' (A) and (C), prior to adding (B)."

The Examiner cites the Statz WO '519 patent as teaching a composition for use in golf balls (page 1, lines 8-12). The composition is accomplished by "(a) melt-blending an ethylene α, β ethylenically unsaturated carboxylic acid copolymer or a melt-processable ionomer thereof with an organic acid or a salt of organic acid, and (b) adding a sufficient amount of a cation source to increase the level of neutralization of all the acid moities (including those in the acid copolymer and in the organic acid) to greater than 90% (preferably greater than 100%)" (page 10, lines 9-16; emphasis added). The Examiner states that Applicants may not rely upon their foreign priority document to overcome this rejection because a translation thereof has not been made of record.

Applicants respectfully traverse these rejections on the following grounds. In general, the Rees '134 patent, the Waggoner '539 patent, and the GB 1113409 patent do not teach or suggest the problems of the low thermal stability of unneutralized fatty acid and the molding defects that can result from unneutralized fatty acid in the fabrication of golf balls, (see Applicant's

specification, page 8, lines 4-22). These references further fail to teach or suggest Applicants' claimed golf ball material, which provides a solution to these problems (see Applicant's specification, page 8, line 23-30; page 11, line 18-32).

Regarding the Rees '134 patent, this reference teaches a process of producing ion linked copolymers (column 1, lines 28-29) and does not teach the fabrication of golf balls. Rees '134 teaches that the copolymer is made from olefin and carboxylic acid (column 3, lines 1-6) and teaches the neutralization of the carboxylic acid groups of the copolymer (column 1, lines 41-44, 62-67). The neutralization can be achieved using cations, such as monovalent and divalent metal ions (column 3, line 72, to column 4, line 2), which can be added in the form of salts, oxides, hydroxide carbonate, free metal, metal hydride, metal alkoxide or organometallic compounds (column 4, lines 31-34). It teaches random distribution of carboxylic acid groups in the polymer molecules (column 2, lines 55-59), and a melt index of the copolymers within the range of 0.1 to 1000 g/10 min (column 2, lines 69-71). With regards to the extent of neutralization, the Rees '134 patent teaches that "the degree of neutralization will differ with the degree of solid property change and the degree of melt property change desired" and "the concentration of the cation should be at least such that the cation neutralizes at least 10 percent of the carboxylic acid groups in order to obtain a significant change in properties" (column 5, lines 48-54). Rees '134 also states that "excess quantities of the cation do not add to the properties of the ionic copolymer of the present invention, since once all carboxylic acid groups have been ionically crosslinked, no further crosslinks are formed" (column 5, lines 64-68).

Example 64 of the Rees '134 patent teaches a mixture of 50 grams of copolymer, 3.25 grams of ZnO, 11.7 grams of stearic acid, and 2.5 grams of acetic acid. This is equivalent to 100 parts copolymer, 23.4 parts stearic acid, and 6.5 parts ZnO. However, the addition of the acetic acid appears to be critical to the processes of the Rees '134 patent ("Only after the addition of the acetic acid does the melt become clear and an increase in viscosity is observed" (column 15, lines 20-22).) Applicants consider that the addition of the acetic acid would destroy the thermal stability and molding improvements because:

1) When the acetic acid is added in the composition, the workability of molding is not good because the acetic acid is liquid which is different type of other components;

2) The molecular weight of zinc acetate is relatively low so that the bleeding inclines to happen; and

3) The molecular weight of zinc acetate is relatively low so that the thermal stability becomes poor.

In contrast, Applicants' Claim 1 recites a golf ball material and the neutralization of acidic groups in both components A (the copolymer) and B (the fatty acid). Also, dependent Claim 8 is directed to the extent of neutralization of the acid groups of the overall mixture. Rees '134 does not teach or suggest the neutralization of the acid groups of the mixture, only of the copolymer.

The Waggoner '539 patent teaches a coating material made from polymers and salts of fatty acids, which is useful for coating glass and providing improved cullet (i.e., pieces of glass) retention (column 5, lines 22-25 and 32-38). Waggoner '539 also teaches, in general terms, the neutralization of only the carboxylic acid groups of the copolymer with metal ions (column 1, lines 55-57). Waggoner '539 teaches that preferred results are obtained when the copolymer is an ionic copolymer having from 10-90% by weight of the carboxylic acid groups ionized by neutralization with metal ions, preferably Na^+ and Zn^{+2} ions (column 2, lines 10-13).

Regarding Example 20 of Waggoner '539, the material was made from 5 grams of a mixture of arachidic and behenic acids, 100 grams of base resin, and 25 grams of NaOH per 100 grams of fatty acid. This is equivalent to 100 parts copolymer resin, 5 parts fatty acid, and 1.25 parts NaOH basic inorganic metal compound. Waggoner '539 teaches, with reference to this particular example, that the "acid was neutralized" by the addition of the NaOH (column 9, lines 55-57; column 10, lines 23-27). Waggoner '539 does not teach or suggest the use of the material of Example 20 for the fabrication of golf balls.

Regarding the GB 1113409 Patent, this reference also fails to teach the fabrication of golf balls. The GB '409 patent teaches the fabrication of a mouldable plastic composition (page 2, lines 34-47). Example 1 teaches using a 100% neutralized sodium salt of a copolymer of

ethylene and methacrylic acid, and adding thereto stearic acid to improve the melt index and eliminate any difficulties in its processing (page 4, lines 32-48). The GB '409 patent does not teach or suggest the benefit of neutralizing the fatty acid, and only expressly teaches the neutralization of the copolymer (page 1, lines 18-20 and 75-82).

Regarding the Statz WO 00/23519 patent, Applicants remove this reference as art by filing the English translation of Applicants' foreign priority document.

For the above reasons, it is respectfully submitted that Applicants' claims are neither taught by nor made obvious from the disclosures of the Rees '134 patent, the Waggoner '539 patent, the GB 1113409 patent or the Statz WO patent and it is requested that the rejection under 35 U.S.C. §102/103 be reconsidered and withdrawn.

Claims 1-18 are rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over the Nakade '375 or Matsuki '404 patents in view of Sullivan '760.

The Examiner states that both Nakade '375 and Matsuki '404 teach the production of golf ball materials by further neutralizing sodium-neutralized ionomers with additional metal, but both references fail to teach the addition of metal stearate (column 1, lines 44-54, and column 2, lines 4-7, respectively). The Examiner also states that these references do, however, teach the inclusion of additives, such as fillers and lubricants.

Sullivan '760 teaches the use of metal stearates as allegedly improving melt flow and cost of ionomeric golf ball materials (column 5, lines 45-57).

The Examiner's position is that it would have been obvious to one having ordinary skill in the art at the time of the invention to add, as an additive, the metal stearate of Sullivan to the golf ball compositions of Nakade '375 or Matsuki '404, to provide improved melt flow and reduced cost.

Applicants respectfully traverse this rejection. Nakade '375 teaches a golf ball having low temperature impact resistance. The golf ball cover composition is made from an ionic copolymer, in which part of the acid groups are neutralized by sodium cations (column 1, lines 44-54). The ionic copolymer must have carboxylic acid units in the form of free acid, and the residue is in the form of sodium salt (column 1, line 65, through column 2, line 1). The

composition is made by reacting a metal oxide, such as MgO and ZnO, with the free acid units of the ionic copolymer (column 1, line 53-54; column 2, lines 13-15). The metal oxide is employed in an amount of 0.1 to 3.0 parts by weight per 100 parts by weight of the ionic copolymer (column 2, lines 17-19). Nakade '375 teaches away from adding metal oxide in excess of the upper limit of this range because undesirable phenomena such as fatigue fracture due to repeated impacts is hastened and also the cut resistance is lowered (column 2, lines 25-31).

Matsuki '404 teaches a modified ionomer resin useful for making a golf ball (column 3, lines 22-27). The composition is made by neutralizing 2 to 30% of the free carboxyl groups of a sodium-neutralized ionomer resin with magnesium hydroxide (column 2, lines 4-7). Matsuki '404 teaches that the magnesium hydroxide is present in an amount sufficient to neutralize 2 to 30% of the free carboxyl groups in the sodium-neutralized ionomer resin (column 2, lines 52-55). For example, an amount of magnesium hydroxide is 0.2 to 1.5 parts by weight based on 100 parts by weight of the resin (column 2, lines 55-57). The amount of magnesium hydroxide is preferably lower (0.3 parts by weight based on 100 parts by weight of resin ("pph")), rather than higher (column 2, lines 57-60).

Sullivan '760, on the other hand, teaches the addition of high levels of fatty acid salts, such as metal stearates, primarily for the purpose of reducing cost and to serve as "ionic plasticizers" (Abstract; column 4, lines 30-38). Specifically, Sullivan '760 teaches adding greater than 10 parts of fatty acid salts per hundred parts resin (Abstract).

The cited references fail to teach or suggest the problem of non-neutralized fatty acid and further fail to teach or suggest Applicants' claimed invention wherein element (C) is used to neutralize the mixture (elements (A) and (B)), and not merely the copolymer. Further, the references teach away from their combination in the manner suggested by the Examiner. Specifically, Nakade '375 teaches away from the suggested combination of the references, since addition of the of metal stearate of Sullivan '760, particularly the preferred "high levels" thereof, could easily serve to provide excessive metal cation in the composition of Nakade '375, resulting in fatigue fracture and lowered cut resistance. Matsuki '404 similarly suggests the desirability of

a limited amount of metal cation and, therefore, teaches away from the addition of additional/high levels of metal cation, which is taught by Sullivan '760.

Thus, one of ordinary skill in the art would not combine the disclosure of Nakade '375 or Matsuki '404 with the disclosure of Sullivan '760 as proposed by the Examiner.

For the above reasons, it is respectfully submitted that Applicants' claims are neither taught by nor made obvious from the disclosures of the Nakade '375 patent, the Matsuki '404 patent, in view of the Sullivan patent and it is requested that the rejection under 35 U.S.C. §103 be reconsidered and withdrawn.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Applicants hereby petition for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,

Lee C. Wright Reg. No. 41,441

Lee C. WRIGHT

SUGHRUE MION, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, D.C. 20037-3213
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

Kathleen A. Tobin
Registration No. 43,194

Date: February 19, 2002

APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification is changed as follows:

Page 23, Table 3 is amended as follows:

Table 3

				Example	Comparative Example	
				6	15	16
Inner Cover Layer	Composition (pbw)	Component A1	Nucrel AN4318	100		
		Component A2	Surlyn 6320		100	80
			Himilan AM7311			20
		Component B	Behenic acid	20		
			Magnesium stearate		20	
		Component [D] C	Magnesium oxide	3		
		Titanium dioxide		2	2	2
	Thickness (mm)			1.5	1.5	1.5
Outer Cover Layer	Composition (pbw)	Himilan 1706		50	50	50
		Himilan 1605		50	50	50
		Titanium dioxide		2	2	2
	Thickness (mm)			1.5	1.5	1.5
	Hardness (Shore D)			62	62	62
	Specific gravity			0.98	0.98	0.98
Ball Properties	Weight (g)			45.2	45.2	45.2
	Hardness (mm)			2.68	2.68	2.68
	Initial velocity (m/s)			76.6	76.4	76.2

IN THE CLAIMS:

The claims are amended as follows:

1. (Amended) A golf ball material comprising a heated mixture having a melt index of at least 1.0 dg/mm which is composed of:

(A) 100 parts by weight of a base resin comprising one or a mixture of

(Al) an olefin-unsaturated carboxylic acid random copolymer or an olefin-unsaturated carboxylic acid-unsaturated carboxylate random copolymer or both, and

(A2) a metal ion-neutralized olefin-unsaturated carboxylic acid random copolymer or a metal ion-neutralized olefin-unsaturated carboxylic acid-unsaturated carboxylate random copolymer or both;

(B) 5 to 80 parts by weight of a fatty acid or fatty acid derivative having a molecular weight of at least 280; and

(C) 0.1 to 10 parts by weight of a basic inorganic metal compound capable of neutralizing acidic groups in components A and B.